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Faculty Working Papers

AN ASSESSMENT OF THE
RELEVANCE OF EXCHANGE RATES TO TRANSLATION

Dennis H. Patz

#168

College of Commerce and Business Administration
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FACULTY WORKING PAPERS

College of Commerce and Business Administration

University of Illinois at Urbana-Champaign

March 5, 1974

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AN ASSESSMENT OF THE
RELEVANCE OF EXCHANGE RATES TO TRANSLATION

by

Dennis H. Patz*

*Lecturer in Accountancy, The University of Illinois at Urbana-Champaign. This paper derives from doctoral dissertation research currently in progress at The University of Texas at Austin under a grant from the Ernst & Ernst Foundation and under the supervision of Professors George M. Scott and Charles H. Smith, all to whom the author acknowledges his indebtedness. The author would also like to thank Professors Hanns-Martin Schoenfeld and Ronald D. Picur, The University of Illinois, for their review and helpful comments on this paper.

AN ASSESSMENT OF THE
RELEVANCE OF EXCHANGE RATES TO TRANSLATION

Every professionally sanctioned U.S. method of translation involves the exclusive use of exchange rates to translate financial statements of foreign-based subsidiaries. For that matter, nearly every other method proposed or used elsewhere in the world relies on exchange rates to effect translation. Yet, in general, accountants "have taken for granted that exchange rates should be used to translate instead of other data but have never explained why."¹ It is our purpose in this paper to examine the "conventional wisdom" of using exchange rates to translate foreign accounts by assessing the relevance of exchange rates to accounting measurement in a translation context.

Sources of Relevance

Given a set of foreign financial statements the information content of the statements after translation rests considerably on the translation rates applied. It follows that relevance for exchange rates in translation must lie in the information content inherent in the rates themselves and so imparted by their use. As a result, levels of exchange rates and changes in exchange rates could be relevant to accounting measurement in one of two ways.

¹Leonard Lorenson, "The Temporal Principle of Translation," Journal of Accountancy, LXXXIV, No. 2 (August, 1972), p. 48. Such is not the case, however, in economics where exchange rates are used for strikingly similar purposes to that for which accountants use exchange rates; that is, to express real incomes or assess real income differences of various countries in terms of a common unit of account. See, for example, Paul A. David, "Just How Misleading Are Official Exchange Rate Conversions?," The Economic Journal, LXXXII, No. 327 (September, 1972), p. 979.

First, they may provide useful information regarding future actions in the foreign exchange market, and recognition of changes in them would measure changes in the firm's ability to engage in transactions in this market. In this case, the foreign exchange market is the environment impacting on the firm and exchange rates themselves the environmental variables of concern. Exchange rates could be of direct relevance in the sense that as market prices they contain information with regard to accounting valuation of foreign firm resources by way of reflecting the conversion or remittable dollar value of those resources. Correspondingly, changes in exchange rates (where recognized) would directly measure the effect of the foreign exchange market environment acting on the firm by reflecting alterations in the value of firm assets in terms of command over remittable dollars. Conceptually this can be viewed as the use of exchange rates to establish value. Establishing relevance for exchange rates along these lines rests in establishing the relevance of the foreign exchange market to foreign operations in general and to foreign firm values specifically.

Second, the relevance of exchange rates to translation could be indirect or conceptually derived in an opposite fashion; that is, the nature of economic value justifies the use of exchange rates. Exchange rates may constitute reasonable approximations of relative currency value. They may reflect the relative values of currencies in acquiring goods and services in their respective economies vis a vis the dollar in the U.S. Correspondingly, their use would result in logical restatement of foreign-held net assets and income in terms of equivalent dollar economic magnitudes.² Here useful information re-

²Restatement would be with reference to either a historical point in time, if historical rates were used, or to the present, if current rates were used. Such restatement would be logical in the sense of relating accounting measures in terms of the attribute expressed by all currency units--general command over goods and services--and in the sense of reflecting asset value in terms of the actual location and place of use of the assets.

garding future actions in local input-output markets is involved, and recognition of changes in exchange rates would reflect changes in the firm's ability to engage in transactions in these markets. In this case the environment is the local economies involved, internal prices the relevant environmental variables and exchange rates become surrogates for direct measures of relative currency value. Establishing relevance of local input-output markets to foreign operations, in general, is not an issue. Rather, justification for the use of exchange rates revolves around the question of how good a surrogate for direct measurement of relative currency value are exchange rates.

Direct Relevance

As noted, establishing the direct relevance of exchange rates to translation involves establishing the relevance of the foreign exchange market to foreign operations in general and to foreign firm values specifically. An exchange rate, viewed solely as a market price, when applied to a foreign-sourced accounting measurement, results in an expression of remittable dollar value. We must, therefore, be able to establish the remittable dollar value attribute of net assets and income as of paramount importance. For this we require evidence to support a view of foreign operations, in terms of the "general case,"³ similar to that of a home office with branch sales outlets. There should exist convincing evidence to support a nationalistic view of the foreign firm as essen-

³The concept of a "general case" lies at the heart of theory construction. Without initial assumptions (propositions) regarding the nature of the phenomenon that an accounting process is to depict, no logical derivation of principles to depict the phenomenon is possible. By the same token, the applicability of the principles derived is indeterminant; i.e., situations warranting exception cannot be identified. Most important, however, such propositions about the phenomenon at issue have empirical content and their validity is empirically testable.

tially a source of cash flow to its domestic parent or affiliate.⁴ Such a viewpoint accentuates the attribute of foreign-held net assets which is dominant and warrants measurement: dollar remittance value over a going concern value in the foreign economy; historical cost as an expression of economic sacrifice with reference to the U.S. economy and price structure over sacrifice with reference to the foreign country.

Unless a remittance oriented view of the nature of foreign operations can be upheld, there is little sense in valuing foreign-held assets at conversion prices when they are not likely to be converted in the foreseeable future or in costing assets as if they were purchased with U.S. dollars and being used to generate income streams in the U.S. economy when they were not and are not.⁵ For example, if remittance cannot be expected until the year 2000, then it becomes questionable if resources held abroad possess a remittable dollar value attribute in any meaningful sense or if useful information is being provided through measurement of this attribute and changes therein. These arguments do not seem circumvented by the contention that a decision has been made to leave the assets abroad and so a need for measurement to reflect the conse-

⁴Such a view pervades the translation literature and is widely acknowledged. For example, the International Accounting Committee of the AAA isolated the assumption "that the foreign branch or subsidiary exists solely to provide cash" to the domestic company and considered it common to the work of most writers. Committee on International Accounting, American Accounting Association, Report of the Committee on International Accounting, supplement to the Accounting Review, XLVIII, 1973, p. 151. See also Eugene L. Schotanus, "A Strategy for Coping With Exchange Risks," Management Accounting, LII, No. 7 (January, 1971), pp. 45-46.

⁵Traditional theoretical premises would lack validity; e.g., "the attribute of foreign money of most interest from the perspective of the U.S. dollar financial statements" is the foreign money's command over U.S. dollars and approximation of U.S. dollar prices of non-monetary assets is a desirable and useful end. Leonard Lorenson, project director, American Institute of Certified Public Accountants, Accounting Research Study No. 12, "Reporting Foreign Operations of U.S. Companies in U.S. Dollars," (New York: AICPA, 1972), pp. 17-18.

quences of this decision vis a vis its opposite (repatriation to the U.S.) exists. This constitutes measurement of an opportunity value, one derived from consideration of only one of many possible alternatives available where the alternative chosen is generally an infeasible one and where complete measurement of that value is not possible. The result is portrayal of non-reality rather than reality.

Foreign exchange is a commodity and a foreign exchange rate the price applicable to that commodity in a conversion market. There is no a priori basis for applying a market determined price for one commodity to transactions not involving that commodity or to use such a price in general accounting valuation. It must be shown that value derives essentially from command over that commodity. Hence we must be able to demonstrate, at a minimum, that foreign-based subsidiaries engage in extensive remittance and other exchange transactions requiring command over the domestic currency. Coincidentally, we would need to show that the operations of the bulk of these firms consist of short-lived transaction cycles with a preponderance of cash or near cash assets being held awaiting remittance in order to substantiate remittable dollar or conversion valuation of net assets and income.

In contrast, we do not seek evidence of a preponderance of non-monetary assets (as in manufacturing abroad). We do not seek evidence of realization cycles where the time between U.S. investment, foreign income, remittance is long. The latter state of affairs suggests continual recognition of reversing and/or non-existent gains and losses.⁶ This will obtain in that realization

⁶That gains and losses presently recognized are often not real in any economic sense is broadly recognized. See Accounting Principles Board, Proposed APB Opinion, "Translating Foreign Operations," (New York: AICPA, 1972). See also Donald J. Hayes, "Translating Foreign Currencies," Harvard Business Review, L, No. 1 (January-February, 1972), pp. 14 and 159, Joseph E. Connor, "Accounting for the Upward Float in Foreign Currencies," Journal of Accountancy, CXXXIII, No. 6 (July, 1972), p. 41, "Multinational Profits," Forbes, CVIII, No. 10 (November 15, 1971), p. 77, "Corporate Gnomes," Fortune, LXXXIV, No. 1 (July, 1971), p. 71 and Gunter Duffey, "The Outlook for the International Monetary System and Implications for Subsidiary Valuation," International Journal of Accounting, VI, No. 1 (Fall, 1970), pp. 30-31.

of gains and losses recognized are necessarily contingent upon the validity of assumptions which must be made at the time of their measurement. In particular, future remittance, the relative permanence of exchange rate levels and often the magnitude and timing of future foreign currency cash flows must be assumed. Overall, we do not seek evidence that the population of foreign firms with which translation deals contains primarily separate, viable, permanent going concerns.

Evaluation of Direct Relevance

If we must look to the general nature of foreign operations to establish the relevance of the foreign exchange market to the firm, and so the direct relevance of exchange rates, given available evidence little support can be found for the use of exchange rates. Unfortunately, at present no definitive empirical study of the characteristics of the population of multinational firms and their foreign affiliates appears to exist. However, based upon what evidence does exist, the apparent nature of contemporary foreign operations in terms of the general case will not uphold the dollar conversion value view required.

While the meaning of the term multinational enterprise differs from writer to writer,⁷ we use the term here simply to identify companies with material interests in foreign affiliates or subsidiaries and to differentiate these

⁷For example, Scott sees the primary distinguishing characteristic of multinational enterprises as the attempt by management to conduct global operations in an integrated fashion. Zenoff and Zwick, on the other hand, differentiate by size of foreign earnings, designating a multinational as typically deriving one-fourth of its earnings or better from foreign operations. George M. Scott, "Global Financial Coordination in Multinational Enterprises," Working Paper 72-13, Graduate School of Business, The University of Texas at Austin, October, 1971, p. 1 and David B. Zenoff and Jack Zwick, International Financial Management, (Englewood Cliffs: Prentice-Hall, 1969), p. 10.

firms from domestic firms that merely engage in some foreign transactions and as a result may carry foreign currency denominated assets and liabilities requiring translation.⁸ Thus, we are speaking of firms where translated amounts constitute a material aspect of reported results and position. With regard to these firms, Mueller makes the following distinction which can be used in attempting description of the multinational firm population: firms involved in import-export activities, national firms with international business and international firms.⁹

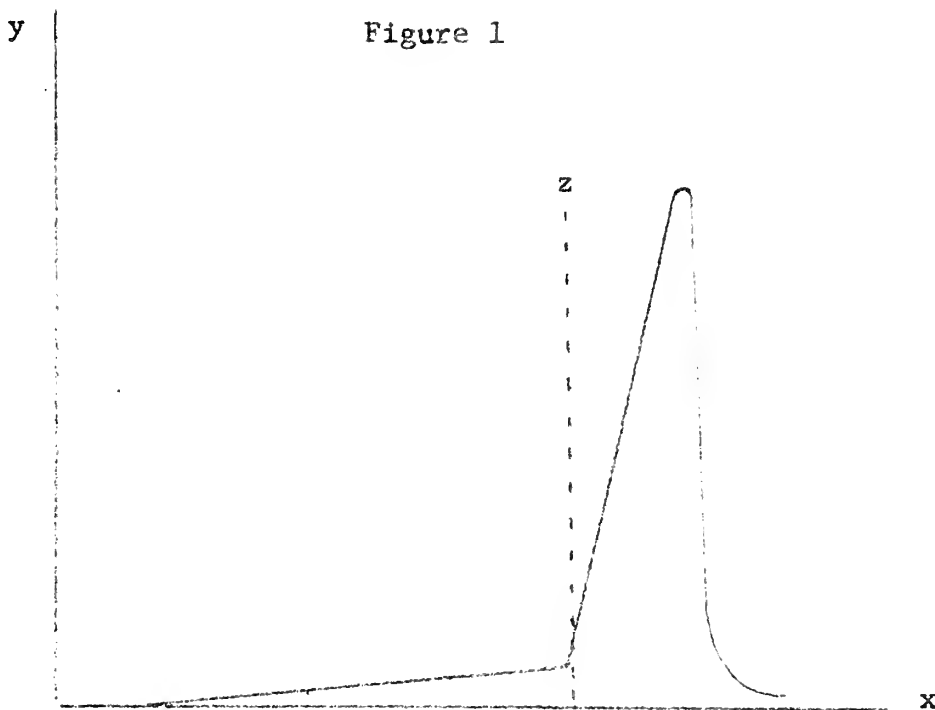
Indeed, there appears to be a continuum of multinational firms, beginning with firms whose foreign operations are categorized as import-export activities through those characterized as national operations with international business operations to the extreme form of the international or multinational firm in the view of Mueller and Scott. There is good reason to believe, however, based on the characteristics that define the place along the continuum that any firm would fall, that a distribution of these firms is markedly leptokurtic and positively skewed.

Figure 1 illustrates such a distribution. The continuum referred to above, the horizontal axis in Figure 1, should be viewed as a weighted combination of several individual characteristic continuums. The degree to which a particular firm possesses each presumed pertinent characteristic, in combination with the degree possessed of each other characteristic, defines the firm's

⁸Parkinson utilizes a similar distinction throughout his study for the Canadian Institute. R. MacDonald Parkinson, author, Canadian Institute of Chartered Accountants, Accounting and Auditing Research Committee Research Study, "Translation of Foreign Currencies," (Toronto: CICA, 1972).

⁹Gerhard G Mueller, International Accounting, (New York: Macmillan, 1967).

position along the classificational continuum. These characteristics would at least include remittance-reinvestment behavior, the permanence continuity and normalcy of the foreign operations conducted, management view of the foreign element of the total system, the absolute and relative magnitudes of foreign operations conducted, direction of operational expansion and emphasis, goals adopted by management, and the degree of centralization and worldwide coordination.



y-Number of multinational firms, as defined in this paper as those domestic firms having material interests in operations conducted abroad.

x-A classificational continuum by nature of the firm from export-import, through national firms with foreign operations to international or "multinational" in the sense used by Mueller and Scott; a conceptual ordering of the total population of multinational firms based on the characteristics they exhibit.

z-The implied dichotomization, the right of which constitutes the "general case."

All of the above stated characteristics, of course, are not of equal significance, with remittance-reinvestment behavior, permanence and continuity more important than, say, degree of entralization from the standpoint of an accounting concept of the firm. Nevertheless, the evidence available suggests that a distribution such as that illustrated in Figure 1 holds, and especially with reference to those characteristics of particular accounting consequence. Some observations by Mueller provide a useful starting point in arraying this evidence:

International business has significantly shifted to international operations, including manufacturing, assembling, and distributing goods from plants and facilities located in almost every country of economic significance.

Summarizing contemporary business internationalism, it seems fair to say that there are no longer foreign operations in the traditional sense. Some few firms still fit the older models of export and import activities only and therefore may be said to be engaged in foreign business. For most firms, however, business outside their respective home countries is no longer thought of as foreign. Rather it has become an integral and permanent part of the overall undertaking and there is nothing "foreign" about it. It is international in the fullest sense of the term.¹⁰

Mueller suggests that few firms fit the import-export mold and the shift has been toward more permanent forms of investment. Aggregate statistics tend to support this view. U.S. direct foreign investment reached approximately \$78.1 billion by the end of 1970.¹¹ Manufacturing and petroleum make up the bulk of this investment. Manufacturing investments rose 190% from 1961 so as to account for an estimated \$32.2 billion in 1970.¹² Plant and

¹⁰Ibid., p. 193.

¹¹Lorenson, ARS No. 12, p. 1.

¹²Susan B. Foster, "Impact of Direct Investment Abroad by United States Multinational Companies on the Balance of Payments," Federal Reserve Bank of New York Monthly Bulletin, LIV, No. 7 (July, 1972), p. 170.

equipment expenditures by foreign affiliates of U.S. corporations for 1972 have been estimated at \$15.2 billion (as compared with \$9.3 billion in 1967), with Canada accounting for \$3.2 billion, Europe for \$5.7 billion and Latin America \$1.7 billion. Manufacturing and petroleum are estimated as making up \$6.8 billion and \$5.1 billion of the total respectively.¹³ Sales by foreign affiliates were estimated at \$132 billion in 1970, up from \$50 billion in 1960 and were broken down as follows: \$74 billion from manufacturing, \$36 billion from petroleum, \$6 billion from mining and smelting and \$16 billion from all other sources.¹⁴ Production by U.S. companies abroad in 1969 was estimated at \$200 billion, which was approximately equal to the gross national product of Japan.¹⁵

As expected, earnings and interest remittances to the U.S. have increased as well, from \$2.8 billion in 1961 to \$6.0 billion in 1970.¹⁶ Interestingly, however, remittances have not kept pace either with sales increases or with earnings growth, the latter growing from \$3.0 billion in 1958 (and approximately \$3.8 billion in 1961), to \$10.8 billion in 1970.¹⁷ This is not surprising as overseas markets are growing faster than the U.S. market and the non-U.S. business of multinational firms is likewise growing faster than their

¹³R. David Belli, "Plant and Equipment Expenditures by Foreign Affiliates of U.S. Corporations, 1971-73," Survey of Current Business, LII, No. 9 (September, 1972), p. 19. The figures are based on the U.S. Department of Commerce, Bureau of Economic Analysis semi-annual survey of 450 U.S. direct investors and their 4800 affiliates. The Bureau extrapolates to universe estimates of gross property and plant expenditures for all directly held affiliates where the U.S. equity is 25% or more.

¹⁴Foster, p. 254.

¹⁵"Special Report on Multinational Companies," Business Week, No. 2155 (December 19, 1970), p. 61.

¹⁶Foster, p. 254.

¹⁷Lorenson, ARS No. 12, p. 1.

U.S. business.¹⁸ Thus, we observe a marked decline in earnings-remittance (from 74% in 1961 to 56% in 1970), and it is not unreasonable to expect greater and greater proportions of foreign earnings to be reinvested abroad, either in the affiliate generating such earnings or in companies located elsewhere in the world.

The preceding statistics indicate expanded investment, manufacturing emphasis, extensive commitment to long-lived assets and earnings retention. They, as well as the statistically demonstrable¹⁹ proliferation of foreign subsidiaries and the high relative and absolute size of commitments by individual U.S. firms abroad, support an argument that the terms permanency, continuity and normalcy are more descriptive of the foreign operations of multinational firms in general than would be their antonyms.

The existing literature also tends to bear out a contention that the population of firms having material interests in foreign subsidiaries and affiliates is distributed as in Figure 1. For example, Seidler expresses the need to recognize that many foreign operations are viable entities separate from their parents. He later asserts: "Foreign operations or, in current parlance, multinational operations, are now quite conventional and normal."²⁰

¹⁸Raymond Vernon, "Future of the Multinational Enterprise," in Charles P. Kindleberger, The International Corporation, p. 381 and "Special Report on Multinational Companies," p. 58.

¹⁹Raymond Vernon, "Future of the Multinational Enterprise," in Charles P. Kindleberger, The International Corporation, (Cambridge: The M.I.T. Press, 1970), Chapter XV, Table 1, pp. 380-383, "Special Report on Multinational Companies," Business Week, No. 2155 (December 19, 1970), pp. 57-58, Gerhard G. Mueller, "Are Traditional Foreign Exchange Translation Methods Obsolete?," California Management Review, VII, No. 4 (Summer, 1965), p. 41, "Multinational Profits," p. 77, Lorenson, ARS No. 12, p. 1 and Hayes, p. 6.

²⁰Lee J. Seidler, "An Income Approach to the Translation of Foreign Currency Financial Statements," The CPA Journal, XLIII, No. 1 (January, 1972), p. 31 and 34.

Duepree sums up fairly well the overall contemporary view:

Companies having foreign operations today tend to be multinational in character. Their operations are viewed by many investors from a worldwide point of view, which recognizes that there are specific differences in conditions among the countries...In the large multinational companies, remittance to the U.S. parent company is generally no longer a primary objective.²¹

There seems every reason to believe that the distribution in Figure 1 is a fairly accurate description of the population of firms having material interests in foreign subsidiaries and affiliates. The importance of this distribution, in particular its peakedness and skewness,²² suggests that a "general case" exists as far as multinational firms are concerned, is specifiable in terms of specific characteristics, and these characteristics are anathema to establishing direct relevance for exchange rates in the accounting measurement of foreign operations and net asset values.

A disinvestment, dollar conversion view of foreign operations clashes with the foregoing "general case" where normalcy, continuity, expansion, re-investment, and permanency are descriptive of foreign operations conducted by the vast majority of multinational firms. This conflict has not gone unnoticed. The International Accounting Committee concluded that the assumption

²¹Marvin M. Duepre, "Translating Foreign Currency Financial Statements to U.S. Dollars," Financial Executive, XL, No. 10 (October, 1972), p. 49.

²²In the present case, peakedness is not as important as skewness. The more peaked the less difficulty dichotomizing firms for accounting purposes. The flatter the curve the greater the chance that more than two categories of firms exist which are significantly different for accounting purposes. The less skew the distribution, however, the greater the number of exceptions to the "general case." The researcher's own perception of the situation, expressed by the extreme skewness and kurtosis in Figure 1, is that a near nominal scale applies to those characteristics of the firms which have direct accounting consequences. That is, firms either do or do not exhibit a particular characteristic, and for those that do a higher degree possessed merely makes the arguments advanced stronger.



that subsidiaries exist to provide cash to the parent is no longer tenable for multinational enterprises.²³ Parkinson states:

Looked at from the point of view of a Canadian parent, in a typical situation, no part of its investment in a foreign subsidiary can be regarded as current. (A possible exception might be represented by surplus funds held by the subsidiary awaiting remittance to the parent.) That is to say, for all practical purposes, none of the current assets or liabilities appearing in the balance sheet of the subsidiary is about to be converted to Canadian currency or remitted to the parent; for this reason the working capital held by a foreign subsidiary represents as much a permanent investment by the parent as do the non-current balances held by the subsidiary.²⁴

Given the available evidence, only one conclusion appears tenable with regard to the direct relevance of exchange rates for firm valuation. Unless there is substantive evidence that a firm is not described by the general case, i.e., the firm clearly falls in the left-hand tail of the distribution in Figure 1, they are only directly relevant to transactions involving actual currency conversion or to valuation of particular assets and liabilities when conversion in the short-term is reasonably assured. In other words, if objective evidence is present that a portion of cash will be remitted as dollar dividends or that a particular liability will require a conversion of U.S. dollars prior to settlement, exchange rates as conversion prices are directly relevant to valuing the asset or liability. If in a reasonably short time a conversion of foreign currency is to take place then it is consistent with accrual accounting to apply an expected price or exchange rate to valuation of the item.

²³Committee on International Accounting, p. 151.

²⁴Parkinson, p. 79. See also pp. 29, 70 and 98. It is also worthy of note that the AICPA recognized this same fact for many companies back in 1931. Committee on Accounting Procedure, American Institute of Accountants, Accounting Research Bulletin No. 4 (Special), "Foreign Operations and Foreign Exchange," (New York: AIA, 1939), pp. 32-33.

However, exchange rates as conversion prices do not appear relevant to firm valuation in general. The information provided directly by exchange rates relates to activity in a particular market, a market with which a multinational firm may have only limited dealings.

Indirect Relevance

While exchange rates as conversion prices do not appear to be environmental variables directly relevant to translation, they might be indirectly relevant in the sense of reflecting the relative economic value of currencies. That is, exchange rates may constitute approximations of the relative values of currencies in acquiring goods and services, and so reflect the relative cost-price structures of economies. Exchange rates are then surrogates for another environmental variable, relative price level, and move with inflation in the foreign economy rather than the foreign exchange market.

There are several reasons to consider this possibility. First, internal inflation is often cited as a major factor contributing to changes in exchange rates. As a result, there is a priori basis for the hypothesis that exchange rates reflect the relative values of currencies in acquiring goods and services and changes therein due to inflation. Parkinson, for example, notes that "control, or absence of control, over inflation is a factor in establishing an exchange rate."²⁵ Mueller contends: "There are many reasons why the foreign exchange rate of a given currency may fall. Foremost are internal inflationary pressures."²⁶ Similarly, Wells takes the following view:

²⁵Parkinson, p. 21.

²⁶Mueller, International Accounting, p. 173.

Devaluation and inflation are intimately connected. Exchange problems generally arise because devaluation takes place when the financial authorities of a country decide that the currency is overvalued, and that the country's balance of payments would benefit from a lower value of the currency internationally. A currency normally becomes overvalued because the supply of money has been increased without a corresponding increase in the amount of goods and services available for consumption--in other words, when inflation exists.²⁷

A second reason exists to consider a relative value justification for the use of exchange rates in translation. A great deal of the theoretical reasoning offered to support the use of particular exchange rates for certain items in traditional translation methods rests upon occurrence of internal inflation with material changes in exchange rates. The use of historical exchange rates in translating fixed assets in particular rests upon an "exchange rate-price level covariance assumption." It is presumed after devaluation of a foreign currency, for example, that internal prices will rise so that while the foreign currency unit commands fewer dollars than before, the future flow of those units will be greater. Thus it is reasoned no real loss occurs and so, by use of historical rates, no loss is recognized.

A final reason is that if exchange rates reasonably reflect relative purchasing power and their movements reasonably parody inflation, a seemingly sound conceptual basis is provided for their use in translation. Reasonable approximation of relative value and reasonable adjustment for changes in value by

²⁷Michael T. Wells, "Devaluation and Inflation and Their Effect on Foreign Operations," Accountancy, (August, 1965), as reprinted in Kenneth B. Berg, Gerhard G. Mueller and Lauren M. Walker, Readings in International Accounting, (Boston: Houghton-Mifflin, 1969), p. 262. A similar view is expressed by Shulman, i.e., fundamental disequilibrium occurs when high inflation affects international competitiveness to the point of structural deterioration in a country's balance of payments. R. B. Shulman, "Are Foreign Exchange Risks Measureable," Columbia Journal of World Business, V, No. 3 (May-June, 1970), p. 56.



exchange rates is all that should be expected of exchange rates. The alternatives are direct measurement versus surrogate measurement. An attempt at direct estimation of currency value is certain to involve difficulty and costs and be itself somewhat imprecise. In contrast, exchange rates are readily available for use at nominal cost.

Upon investigation of exchange rates, depending upon the approach taken, we would expect certain conditions to hold in general for exchange rate behavior. Several criteria for assessing the appropriateness of using exchange rates in translation under an indirect relevance criterion suggest themselves. First, exchange rates should tend toward being equilibrium rates. An exchange rate could be deemed an equilibrium rate if it tended toward creating a zero balance of payments position; i.e., that rate which would tend to eliminate an existing payments deficit or surplus. A second type of equilibrium rate would be a "clearing" rate in the sense of tending toward a balancing off of international dealings at points in time and one which would not tend to change an existing payments position. Conceptually the two interpretations are the same in that given continuous existence of the latter the former could never exist. However, large deficits do occur so the first type of equilibrium rate may be the best (in the sense of reflection of relative currency value) we can expect.

Second, exchange rates should tend to move toward equilibrium on a timely basis. Material overvaluation or undervaluation of currencies should not persist for extended periods of time. This is particularly important. Timely recognition in the accounts of the effects of environmental variables is clearly desirable in order that action can be taken to avoid those which are dysfunctional. Also, erratic recognition of changing values frustrates single period and multiple period interpretation of financial statements.



Third, since rates are derived from the international goods market, equilibrium rates must basically express relative cost-price relationships between internationally traded goods. Relative purchasing power must be what is essentially being portrayed by exchange rates at different points in time and this should not be continually obscured by other forces acting on exchange rates.

Fourth, the goods traded internationally and therefore their relative costs and prices must be fairly representative of the relative costs and prices of the goods and services that any multinational firm may deal in or hold. If this condition does not hold, then the value expressed by exchange rates is not relevant at the firm level. Since our concern is with a wide range of firms and therefore a wide range of assets held, there must exist some reasonable correspondence between the behavior of exchange rates and the behavior of local prices in general. There must be correspondence between internal general purchasing power of currencies and their external purchasing power--general purchasing power because, as Zenoff and Zwick state: "The impact inflation may have on an affiliate of a multinational firm depends on inflation's effect on the overall business environment."²⁸

The preceding four criteria provide a useful framework for evaluating exchange rates in a step by step fashion. The hypothesis that exchange rates reflect relative currency value must derive from a multiple-step reasoning process. Exchange rates arise from the supply and demand for currencies. The supply and demand for currencies is related to a country's balance of payments. A country's balance of payments arises from the import and export of

²⁸Zenoff and Zwick, p. 53.



goods and services. The level of imports and exports for a country is a function of supply and demand for internationally traded goods and services (including capital) and that in turn depends upon the cost-price structure in that country vis a vis other countries. Thus a reasonable relationship between internal prices and the prices of currencies is possible. The four criteria deal with both the links in the necessary train of reasoning as well as accounting considerations such as timely adjustment and relevance at the firm level.

Evaluation of Indirect Relevance

Achievement of the first two criteria advanced, (i.e., reasonable tendency toward equilibrium and reasonably timely movement toward equilibrium), can be assessed by way of an examination of past exchange rate behavior and identification of environmental variables which enter into determining that behavior. We shall conduct this examination on two levels--fluctuations of rates about par or parity and changes in par or parity values. The last two criteria reduce to a proposition that exchange rates parody the effect of inflation on currency values and therefore firm values. This proposition is assessed in the final section of this paper.

Fluctuations About Parity

Given a central parity and upper and lower bounds for fluctuations around parity, a basic determinant of the value of any currency at a point in time (the spot rate) is the supply and demand for the currency. Supply and demand, in turn, is generally related to the country's balance of payments, and movements in exchange rates "will normally reflect changes in a country's balance of payments."²⁹ Since balance of payments is directly related to cost-price

²⁹Alan R. Holmes and Francis H. Schott, The New York Foreign Exchange Market, (New York: Federal Reserve Bank of New York, 1965), p. 31.



structure through supply and demand for imports and exports, it is plausible that movement in exchange rates could be reflecting, to a large extent, changes in the relative value of currencies. However, at the short-term fluctuation level it is highly unlikely that value will be precisely specified or remain unobscured by other forces acting on the market rate as it moves around par.

Interrelationships

The relationship between internationally traded goods, their prices, price levels in general and exchange rates is less than simple. The prices of traded goods are affected by many factors other than supply and demand and internal price levels. The same holds true for exchange rates. They too are not just influenced by the balance of payments position of countries. For example, the prices of traded goods will be affected by border taxes, tariffs, goods prohibitions, differing tax rates and various other impediments to a free flow of goods, money and services. These factors and other factors such as interest rates in one country versus another will likewise affect the supply and demand for a particular currency. As these factors change so also will exchange rates change. This raises an ancillary point. Not only is relative value between currencies obscured because these factors enter into the determination of exchange rates, but the possibility of reasonable separation, identification and measurement of the effect of changing values indirectly through use of market exchange rates becomes doubtful. While an account such as "exchange gain or loss" may capture part of the effects caused by the factors above, other accounts such as tax expense, duties and cost of goods sold will be capturing additional or offsetting effects and not necessarily in the same accounting period. If a market exchange rate is responding to interest rate differentials, then an offsetting effect is implicit in any interest expense being recognized on foreign denominated debt.



Exchange Controls

Exchange controls significantly interfere with supply and demand. The result is that value relationships which exchange rates under the influence of supply and demand for goods and therefore currencies might otherwise reflect become obscured. From the point of view of a particular government, devaluation or revaluation is merely one of several policy tools available for managing a country's international position. If a country is experiencing balance of payments problems, changing the par value of its currency is one approach to solving the problem. Another approach is to use fiscal or monetary policies to reduce aggregate demand. Interest rates, for example, may be exchanged to stimulate inflows of capital or to control inflation. Exchange controls, controls over currency exchange transactions by the government, constitute other "discretionary policy measures that can be employed to counter the free market forces affecting a country's balance of international payments."³⁰

Government control over exchange varies from little to complete both by countries and for single countries over a period of time. Nearly all countries have some remittance restrictions. For example, at December 31, 1971, companies in Greece were restricted to repatriation of invested equity at 10% per year and profits on equity at 12% per year. At that same time, Brazil not only restricted repatriation but also applied a penalty tax on remittances in excess of 12% per year. Multiple exchange rates exist in several countries providing preferential rates to exporters or importers or for certain goods over others.

The point is that supply and demand for a currency and, therefore, its

³⁰Zenoff and Zwick, p. 41.



market rate of exchange is artificially controlled through exchange controls. Furthermore, the impact of these controls is not stable, since they are changed frequently. The result is that neither the existing rate for a currency nor changes in that rate are reflections of supply and demand for the currency on numerous occasions.

Direct Market Intervention

Exchange rates might still consistently reflect supply and demand for a currency, and so perhaps intrinsic value, if supply and demand was not often overshadowed by another factor in the market. Relatively long-term imbalance can be perpetuated by government intervention in the foreign exchange market alone. As an exchange rate moves upward or downward from parity, a country may sell or buy its currency against dollars. In the case of the United States, the Federal Reserve Bank of New York enters the market to slow or halt movements within official limits. Such government intervention in the foreign exchange market "is known to have taken place regularly since the IMF was founded, and particularly at times of considerable strain on those currencies which are world trading currencies."³¹ It should be noted that:

Official activity is at least an ever present factor and at times may be the most important single element in the market.³²

Implications

From the foregoing observations it must be concluded that no meaning can safely be attached to any particular movement in an exchange rate about its established par for accounting valuation purposes. Change in the market value of a currency may have resulted from any number of factors unrelated to change

³¹Committee on International Accounting, p. 129.

³²Holmes and Schott, p. 14.



in the nature of the currency for purposes of claim on goods and services. We have discussed some of these factors. To those discussed we can add random, unfulfilled and self-fulfilling speculation, seasonal peaks in import-export activity, sporadic disturbances via singularly large international payments and surely other obscuring factors exist.

Since fluctuations around parity cannot, in general, be associated with permanent, identifiable and measurable effects on firm values use of specific market rates in translation will often result in accounting recognition of temporary and reversing movements in rates which are of no discernable consequence to the firm. This can only introduce additional confusion into the interpretation of financial statements that include foreign operations. This conclusion corresponds with that reached by Parkinson in the recent Canadian study where bookkeeping rates, generally seen as equivalent to official par values, were considered adequate for accounting translation purposes. Indeed, attempts to be precise by using specific market rates at year end, for example, were viewed by Parkinson as unconstructive.³³

Changes in Parity

Parity Change as a Political Decision

A change in parity results from a decision by government executives and, therefore, economic considerations are often outweighed by political considerations.

The executive making the decision is a political realist balancing his (or his party's) political future against current economic need. He is free to adjust the exchange rate by an amount that

³³Parkinson, p. 2. King agrees, maintaining that material distortion can result and suggesting that par values be used. Alfred M. King, "The Choice of a Foreign Exchange Rate," Management Accounting, XLIX, No. 8 (April, 1968), p. 13.



will produce an equilibrium rate, or he can undervalue or overvalue. Recent cases in support of all three types of decisions can be cited.³⁴

The important point is that the establishment of a parity value may easily rest on non-economic factors, factors unrelated to or in conflict with setting a realistic value for a currency. Such factors would include the characteristics of the decision makers, the outlook of advisors and domestic political considerations.³⁵

Too Much--Too Little

There is ample evidence to show that parity changes will often be too great or too little in terms of establishing equilibrium rates. Long-term overvaluation or undervaluation of a currency can be expected to be commonplace. The establishment and maintenance of a par value which undervalues a currency may be motivated by a desire to minimize the possible necessity of later devaluation with attendant inflationary effects.³⁶ Another reason may be to increase demand for export goods. In contrast, overvaluation may be maintained to retain the favorable position this gives in international trade.

Devaluation, in particular, is often excessive as it is nearly impossible to determine the precise effect on international payments which will result. As a result, excessive devaluation tends to accentuate the speed and magnitude of retaliatory actions by other countries.³⁷ Zenoff and Zwick note another cause of excessive devaluation, that being a desire to avoid disturbing

³⁴Shulman, p. 57.

³⁵Zenoff and Zwick, pp. 68-69.

³⁶Samuel R. Hepworth, Reporting Foreign Operations, (Michigan Business Studies, Vol. 12, No. 5), (Ann Arbor: University of Michigan, 1956), p. 105.

³⁷Ibid., p. 133.



investor confidence in the country. When economics make devaluation inevitable, the size of the adjustment may be founded on the expectation "that one big devaluation now will preclude having to make a series of changes over the ensuing year or two."³⁸ Also, an overly large devaluation may be required to convince speculators that no further devaluation will occur in the immediate future.³⁹ In still other cases there may exist an overriding intent to maintain stability in an exchange rate whether or not warranted. Mexico is a ready example.⁴⁰

Reference to specific cases of par value changes noticeably imprecise, and perhaps intentionally so, can be made. Other cases can be cited where, intuitively, there is no reason to believe realistic currency value adjustment was even involved. For example, the mark was revalued in 1969 by only 4% and the continuing trade surplus after revaluation demonstrated that the adjustment was clearly insufficient to correct the existing disequilibrium. A more recent example can be found in the first revaluation of the yen.⁴¹ Another example is provided by England's devaluation in 1967 where 22 countries closely tied to Great Britain economically also devalued, 17 doing so by the exact same percentage as that of the original adjustment.⁴²

Bach has observed the tendency to postpone a parity rate change "until financial and political pressures made it imperative."⁴³ In particular, he

³⁸Zenoff and Zwick, p. 87.

³⁹Don Schilling, "Devaluation Risk and Forward Exchange Theory," American Economic Review, LX, No. 4 (September, 1970), p. 722.

⁴⁰Price Waterhouse & Co., p. 57.

⁴¹"Sinking Feelings in the Land of the Rising Sun," Forbes, CX, No. 7 (October 1, 1972), p. 30.

⁴²Zenoff and Zwick, p. 88.

⁴³Christopher L. Bach, "Problems of the International Monetary System and Proposals for Reform--1944-1970," Federal Reserve Bank of St. Louis Monthly Review, LIV, No. 5 (May, 1972), p. 31.



refers to the observable sluggishness in changing par values from 1958 to the devaluation of the pound in 1967 and the fairly extensive use of tariffs, quotas and other controls as alternatives to devaluation during the 1960s. Similarly, Mandich asserts that there is generally "a long prelude of deterioration covering several years" before devaluation occurs, especially with regard to more developed nations with substantial reserves to draw on to defend an existing par value.⁴⁴ Indeed, for developed countries generally, devaluation has become a policy measure of last resort.⁴⁵ Less developed countries will similarly avoid devaluation in order to not discourage foreign investment.

For example, Zenoff and Zwick observe that during 1965-1967 many viewed India's devaluation of the rupee as resulting from intense pressure by the United States on an Indian government that was not inclined to devalue.⁴⁶ Shulman cites the British situation in 1964 where the Prime Minister was faced with immediate devaluation or postponing such devaluation and chose the latter.⁴⁷ Instead of devaluing Britain instituted a 15% surcharge on imports in October, 1964 which was reduced to 10% in 1965 and then lifted in November of 1966. Britain was eventually forced to devalue in November, 1967.

Implications

It appears that any expectation that par values will tend toward being reasonable equilibrium rates and be adjusted on a reasonably timely basis is unfounded. As a result, placing reliance on par values instead of market rates as surrogate measures of relative value will still not lead to satisfactory

⁴⁴Mandich, p. 29.

⁴⁵Schilling, p. 722.

⁴⁶Zenoff and Zwick, p. 85.

⁴⁷Shulman, p. 58.



accounting results. Since these par values will often entail considerable currency overvaluation or undervaluation over extended periods of time, their use in translation will result in persistent overvaluation or undervaluation of the net assets of foreign-based firms.

If and when devaluation or revaluation occurs any one of a number of factors, economic, political and so on, may underlie the change. A complex interaction process involving numerous variables in any number of possible combinations is involved. Directly linking any change in an exchange rate, a market rate or a parity value, to identifiable and measureable individual effects on firm accounting values at the time of such an event seems an impossible task.

Exchange Rates and Price Levels

Our third criterion briefly reiterated was if exchange rates reasonably approximated equilibrium rates, such rates would also need to reflect fairly clearly cost-price relationships between internationally traded goods. The fourth criterion was these goods would, in turn, have to be somewhat representative of goods generally. As noted, these criteria reduce essentially to a single, directly assessable proposition: exchange rates are reasonable surrogates for the relative purchasing power value of currencies and their movements reasonably parody relative inflation.

If this proposition is true, then the economic impact of an important environmental variable would be associated with accounting adjustments for changes in exchange rates and a sound basis for cross-national valuation would be provided. An account such as "exchange gain or loss" would then be related to indirect measurement of a relevant environmental variable--inflation. Any gain or loss recognized would be definable in real economic terms. Unfortunately,



such a proposition is patently false.

Authoritative Support

Authoritative support for the proposition that a reasonable relationship exists between exchange rates and price levels is for all practical purposes non-existent. Instead, the conclusion generally reached by those who have addressed the question is that such a relationship does not hold with any regularity that would make exchange rates useful from an accounting valuation standpoint. Some maintain that the pure form of the relationship probably could never exist. Paul Rosenfield expresses such reservation:

"Ideally, under complete freedom of trade and of the determination of exchange rates, the exchange rate would reflect the relative purchasing power of the two currencies...Actually, the ideal situation seldom, if ever exists." The ideal situation in fact may never exist if the goods and services exchanged between the two countries are not representative of the goods and services in general purchased within each country.⁴⁸

David, viewing the problem from an economics perspective of measuring real per capita income differences, maintains that sufficient reason exists to expect marked differences between the relative prices of traded and non-traded commodities.⁴⁹

Whether or not a perfect relationship between exchange rates and price levels can exist is really not that important. From an accounting standpoint all that is sought is reasonable correspondence. The consensus opinion is that such correspondence does not generally exist. For example, Hepworth saw "no reason to believe

⁴⁸Paul Rosenfield, "General Price-Level Accounting and Foreign Operations," Journal of Accountancy, CXXVI, No. 2 (February, 1971), Footnote 11, p. 65. His reference is to Staff of the Accounting Research Division, American Institute of Certified Public Accountants, Accounting Research Study No. 6, "Reporting the Financial Effects of Price-Level Changes," (New York: AICPA, 1963), pp. 148-149.

⁴⁹David, p. 979.



that the adjustment in the external value of a currency caused by devaluation will bear a close relationship to the degree of internal price inflation."⁵⁰ Business Week maintains that official rates "are frequently a poor measure of the actual purchasing power of a country's currency" and Zenoff and Zwick assert that empirical evidence tends to support this contention.⁵¹ Along the same lines, a committee examining the Argentina exchange rate situation found:

...foreign currencies have their own variations in purchasing power and, as the reality of our own country's situation teaches us, the variations in the value of foreign currencies have a direction and intensity different from those manifested by internal prices.⁵²

In general, the opinion of those who have examined closely the question of whether exchange rates mirror price levels seems captured in the following:

There is often considerable difference between these rates so stated by a government and the price structure within a country, that is, the changes in local price structure of a country are not necessarily expressed sympathetically and automatically in the current exchange rates.⁵³

Finally, when a relationship does appear to exist, the sequence in which events occur may vary. Where normally inflation comes first and then currency depreciation, in other situation the opposite occurs where devaluation comes first and inflation follows.⁵⁴

⁵⁰Hepworth, p. 139.

⁵¹"Special Report on Multinational Companies," p. 85 and Zenoff and Zwick, p. 498.

⁵²Adjustment of Financial Statements to Reflect Variation in the Purchasing Power of Money in Periods of Inflation," unofficial translation of recommendations reached by a committee formed by the Buenos Aires Stock Exchange published by Bolsa de Comercio de Buenos Aires as reprinted in Berg, Mueller and Walker, p. 257.

⁵³Sapienza, p. 28. See also "Population, Per Capita Production and Growth Rates," Finance and Development, IX, No. 1 (March, 1972), pp. 55-56.

⁵⁴Wells, p. 262.



Empirical Validity

Correspondence between exchange rates and price levels is essentially an empirical question. Final validity or invalidity of a proposition that exchange rates can serve as reasonable surrogates for relative value in accounting lies ultimately in empirical observation. Such an observation forces rejection of this proposition.

Any number of specific contrary cases can be cited. Consideration of the countries which have recently revalued relative to the dollar will show that several have consistently experienced greater rates of inflation than has the U.S.; Germany, France and Great Britain are examples. As Zenoff and Zwick have pointed out:

If this assumption is correct that devaluation and revaluation move together there should have been, for example, a steady devaluation of European currencies against the dollar during the last twenty years since inflation in Europe has generally been higher than in the United States. Not only has the anticipated devaluation not occurred, but the Deutsch mark and the Gilder have been revalued upward in relation to the dollar. Nor is the assumption any more accurate in the case of countries that have experienced much higher rates of inflation than has Europe. Brazil is a case in point. During the recent past the cruzeiro has remained at 2,200 to the dollar during a twelve-month period when internal prices have risen more than 40 per cent per annum.⁵⁵

Argentina provides a case similar to that cited by Zenoff and Zwick for Brazil. If the exchange rate had moved tandem with the relative prices structures of the U.S. and Argentina between 1953 and 1960 the exchange rate in 1960 would have been about 35 pesos to the dollar; in point of fact the official rate in 1960 was 82.7 pesos to the dollar.⁵⁶ In the case of Peru, Wells has observed that where internal inflation had reached 20% per year in 1965,

⁵⁵Zenoff and Zwick, p. 498.

⁵⁶Sapienza, p. 29.



during the five previous years no devaluation had occurred.⁵⁷

Parkinson has made similar observations regarding correspondence between exchange rates and inflation. First he has observed that changes in one currency relative to another currency do not follow the same pattern as do changes in either of the currencies relative to the U.S. dollar, the Canadian dollar or other currencies. Second, he notes that:

Prices appear to increase in Canada when there is "full employment" and when there is much unemployment; prices increase when the Canadian dollar goes up in value and when it goes down. A review of price changes following upward and downward changes in the external value of the Canadian dollar (in terms of the U.S. dollar) fails to indicate any direct relationship between the two phenomenon.⁵⁸

Parkinson cites the specific example of the decline of the U.S. dollar by approximately 7% relative to the Canadian dollar in June, 1970. He maintains it was reasonably clear that the change was not a direct consequence of inflation in the U.S. or inflation in the U.S. relative to Canada.⁵⁹ One can return to Germany for an even more recent example. During the first six months of 1971 the consumer price index in Germany rose from 121.1 to 126.1, the same period in which Germany revalued.

Additional single cases of a lack of correspondence between relative costs and prices and exchange rates could be cited. This is not necessary, however, since several broad empirical studies of the relationship of purchasing power to exchange rates are available and all show similar results. One such study was conducted by Milton Gilbert and Associates.⁶⁰ The NAA refers to this study in the following:

⁵⁷Wells, p. 271.

⁵⁸Parkinson, pp. 86-87.

⁵⁹Ibid., p. 73.

⁶⁰Milton Gilbert and Associates, Comparative National Products and Price Levels, (Paris: Organization for European Economic Cooperation, 1958).



..., common experience indicates that relative price levels in the United States and other countries do not correspond closely to rates of exchange between the currencies. A study of comparative national price levels in the United States and eight European countries supplies statistical evidence to support this observation. For example, this study shows that in 1955 an expenditure of \$1.20 was required to buy in the United States what could be purchased in West Germany for \$1.00 converted to marks at the current rate of exchange. If consideration was given to differing expenditure patterns in the two countries, \$1.66 was required to purchase in the U.S. what \$1.00 converted to marks would buy in West Germany.⁶¹

Table 1 shows for the years 1950, 1955 and 1960 the ratio of the purchasing power of selected currencies to their official dollar exchange rates. Several aspects of the table are worth noting. First, the countries listed are particularly relevant. Multinational activity therein easily account for the bulk of foreign operations. Also, the discrepancies between external value and internal value are both material and unstable over time. Though, on the whole, differences have tended to consistently diminish over time, specific contrary cases are present; i.e., France and Belgium. Finally, the patterns of change over time vary dramatically from country to country so that the bias of exchange rates is not systematic. In other words, accounting valuations based on exchange rates cannot even be expected to involve comparable degrees of overvaluation or undervaluation.

⁶¹National Association of Accountants, N.A.A. Research Report No. 36, "Management Accounting Problems in Foreign Operations," (New York: National Association of Accountants, 1950), p. 24.



Table 1

RATIOS OF PURCHASING POWER TO EXCHANGE RATE
FOR SELECTED COUNTRIES

Country	1950	1955	1965
United States	1.00	1.00	1.00
Germany	1.68	1.67	1.41
Canada	--	--	.93
Denmark	1.64	1.48	1.25
Norway	1.74	1.46	1.38
United Kingdom	1.68	1.51	1.38
France	1.53	1.19	1.35
Belgium	1.35	1.32	1.36
Netherlands	1.90	1.72	1.40
U.S.S.R.	--	--	1.16
Italy	1.87	1.84	1.52
Japan	--	--	1.86

Source: Appendix Table A in Paul A. David, "Just How Misleading are Official Exchange Rate Conversions?," The Economic Journal, LXXXII, No. 327 (September, 1972), p. 989.



Conclusions

We have assessed justification for the use of exchange rates to translate foreign accounts in terms of two concepts of relevance---direct and indirect. With regard to the first, that exchange rates might be directly relevant as commodity prices, we found this approach requires a concept of the firm which is unrealistic and theoretically unsatisfactory. With respect to the second concept (i.e., indirect relevance), we found that the available evidence does not suggest that exchange rates are reasonable surrogates for measures of relative currency value. Hence, we conclude there is no readily apparent basis for using exchange rates in lieu of other data, except that the nature of that other data and the theoretical structure to underlie its use remains unspecified. The specification of an alternative theory of translation and an alternative to exchange rates will be the subject of a future paper.

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